

Amendments to the Claims:

The Applicant makes the following amendments to the Claims:

1. [Withdrawn] A data structure comprising:

a superset comprising a primary database operatively connected to one or more secondary databases, wherein each of said primary and one or more secondary databases comprises a first table operatively linked to one or more other tables, and each of said first and one or more other tables share a common data structure.

2. [Withdrawn] The data structure of claim 1, wherein each of said primary and one or more secondary databases are relational databases.

3. [Withdrawn] The data structure of claim 1, wherein said common data structure comprises a sparse matrix linked list.

4. [Withdrawn] The data structure of claim 1, wherein said common data structure comprises a plurality of records containing data, said records arranged in hierarchical order, in a series of levels from general to specific, based upon said data.

5. [Withdrawn] The data structure of claim 1, wherein:

said primary database includes source tables, a first secondary database includes alias tables, a second secondary database includes standardization tables, and a third secondary database is configured to accept and store input data.

6. [Withdrawn] The data structure of claim 5, wherein:

said source tables comprise data records obtained from a public or private source, said alias tables comprise one or more equivalent representations of a record, and said standardization tables comprise one or more standardized representations of a record.

7. [Withdrawn] The data structure of claim 6, wherein said source tables comprise address records obtained from a government postal service and a commercial source.

8. [Withdrawn] The data structure of claim 1 for storing records comprising one or more artifacts, wherein: said first table includes preferred records, a first other table includes primary alias records, and a second other table includes secondary alias records.

9. [Withdrawn] The data structure of claim 8, wherein:

said preferred records comprise one or more preferred representations, said primary alias records comprise one or more equivalent representations of a primary artifact, and said secondary alias records comprising one or more equivalent representations of a secondary artifact.

10. [Withdrawn] The data structure of claim 9, wherein said preferred records comprise one or more preferred representations of an address.

11. [Withdrawn] A method of preparing data for optimal searching, said data stored in one or more databases comprising a plurality of linked tables of records, comprising:

arranging said records in each of said tables in hierarchical order, in a series of levels from general to specific, based upon said data; and transforming each of said tables into one or more sparse matrix linked list tables.

12. [Withdrawn] The method of claim 11, wherein said one or more databases exist in a server-client network environment, the method further comprising:

distributing a duplicate of said one or more sparse matrix linked list tables from a server to one or more clients.

13. [Withdrawn] The method of claim 11, wherein said one or more databases are relational databases interconnected to form a data superset.

14. [Withdrawn] The method of claim 11, wherein said data comprises address artifacts.

15. [Withdrawn] An apparatus for preparing data for optimal searching, said data stored in one or more databases comprising a plurality of linked tables of records, comprising:

a central processing unit; a memory; a basic input/output system; and program storage containing a program module executable by said central processing unit, said program module comprising:

means for arranging said records in each of said tables in hierarchical order, in a series of levels from general to specific, based upon said data; and
means for transforming each of said tables into one or more sparse matrix linked list tables.

16. [Withdrawn] The apparatus of claim 15, further comprising:

one or more clients remote from said central processing unit, said program module further comprising: means for distributing a duplicate of said one or more sparse matrix linked list tables from a server to one or more clients.

17. [Withdrawn] A method of using a database of linked tables to convert a subjective representation into a preferred representation, comprising:

capturing said subjective representation and storing it in a first one of said linked tables; storing source data in a second one of said linked tables;

locating one or more candidate representations from among said source data by comparing said subjective representation to said source data;

selecting a preferred representation from among said one or more candidate representations, said preferred representation having the closest resemblance to said subjective representation; and

releasing said preferred representation.

18. [Withdrawn] The method of claim 17, further comprising:

reviewing said source data to identify one or more select records containing preferred data; and adding a preferred token to said one or more select records;

19. [Withdrawn] The method of claim 17, wherein said step of selecting a preferred representation comprises identifying a preferred token associated with one of said one or more candidate representations.

20. [Withdrawn] The method of claim 17, wherein said step of locating one or more candidate representations further comprises:

- (a) parsing said subjective representation into one or more discrete artifacts;
- (b) selecting one of said one or more discrete artifacts:
 - (1) locating one or more candidate artifacts from among said source data by comparing said one discrete artifact to said source data;
 - (2) selecting a preferred artifact from among said one or more candidate artifacts, said preferred artifact having the closest resemblance to said one discrete artifact;
 - (3) storing said preferred artifact;
- (c) repeating step (b) for each of said one or more discrete artifacts;
- and
- (d) combining said preferred artifacts to form a preferred representation.

21. [Withdrawn] The method of claim 17, wherein said step of locating one or more candidate representations further comprises:

storing alias data in a third one of said linked tables; reviewing said alias data to identify one or more select alias records containing a preferred alias representation; adding a preferred alias token to said one or more select alias records; locating one or more candidate aliases from among said alias data by comparing said subjective representation to said alias data; selecting a preferred alias from among said one or more

candidate aliases, said preferred alias being most closely associated with said preferred alias token; and releasing said preferred alias as a candidate representation.

22. [Withdrawn] The method of claim 21, wherein said step of locating one or more candidate aliases further comprises:

- (a) parsing said subjective representation into one or more discrete artifacts;
- (b) selecting one of said one or more discrete artifacts:
 - (1) locating one or more candidate alias artifacts from among said source data by comparing said one discrete artifact to said alias data;
 - (2) selecting a preferred alias artifact from among said one or more candidate alias artifacts, said preferred alias artifact being most closely associated with said preferred alias token;
 - (3) storing said preferred alias artifact;
- (c) repeating step (b) for each of said one or more discrete artifacts; and
- (d) adding said preferred alias artifact to said preferred alias.

23. [Withdrawn] An apparatus for using a database of linked tables to convert a subjective representation into a preferred representation, comprising:

a central processing unit;

a memory;

a basic input/output system; and program storage containing a program module executable by said central processing unit, said program module comprising:

means for capturing said subjective representation and storing it in a first one of said linked tables; means for storing source data in a second one of said linked tables;

means for locating one or more candidate representations from among said source data by comparing said subjective representation to said source data;

means for selecting a preferred representation from among said one or more candidate representations, said preferred representation having the closest resemblance to said subjective representation; and

means for releasing said preferred representation.

24. [Withdrawn] The apparatus of claim 23, said program module further comprising: means for reviewing said source data to identify one or more select records containing preferred data; and means for adding a preferred token to said one or more select records;

25. [Withdrawn] The apparatus of claim 23, said program module further comprising: means for identifying a preferred token associated with one of said one or more candidate representations.

26. [Withdrawn] The apparatus of claim 23, wherein said means for locating one or more candidate representations further comprises:

(a) means for parsing said subjective representation into one or more discrete artifacts;

(b) means for selecting one of said one or more discrete artifacts:

(1) means for locating one or more candidate artifacts from among said source data by comparing said one discrete artifact to said source data;

(2) means for selecting a preferred artifact from among said one or more candidate artifacts, said preferred artifact having the closest resemblance to said one discrete artifact;

(3) means for storing said preferred artifact; (c) means for repeating step (b) for each of said one or more discrete artifacts; and (d) means for combining said preferred artifacts to form a preferred representation.

27. [Withdrawn] The apparatus of claim 23, wherein said means for locating one or more candidate representations further comprises:

means for storing alias data in a third one of said linked tables; means for reviewing said alias data to identify one or more select alias records containing a preferred alias representation;

means for adding a preferred alias token to said one or more select alias records; means for locating one or more candidate aliases from among said alias data by comparing said subjective representation to said alias data;

means for selecting a preferred alias from among said one or more candidate aliases, said preferred alias being most closely associated with said preferred alias token; and

means for releasing said preferred alias as a candidate representation.

28. [Withdrawn] The apparatus of claim 27, wherein said means for locating one or more candidate aliases further comprises:

(a) means for parsing said subjective representation into one or more discrete artifacts;

(b) means for selecting one of said one or more discrete artifacts:

(1) means for locating one or more candidate alias artifacts from among said source data by comparing said one discrete artifact to said alias data;

(2) means for selecting a preferred alias artifact from among said one or more candidate alias artifacts, said preferred alias artifact being most closely associated with said preferred alias token;

(3) means for storing said preferred alias artifact;

(c) means for repeating step (b) for each of said one or more discrete artifacts; and

(d) means for adding said preferred alias artifact to said preferred alias.

29. [Withdrawn] A method of controlling access to a database by one or more external applications, comprising:

establishing and storing a plurality of rule sets, each correlated to one of said one or more external applications;

receiving a request from a first application;

retrieving a first rule set correlated to said first application; and

applying said first rule set to control the interaction between said first application and said database.

30. [Withdrawn] The method of claim 29, wherein said first rule set includes a list of data available for capture from said database for use by said first application.

31. [Withdrawn] A method of controlling the depth of data capture within a database in response to a request from one or more external applications, comprising:

establishing and storing a plurality of rule sets, each correlated to one of said one or more external applications, each of said plurality of rule sets including a list of data to capture from said database;

receiving a request from a first application;

retrieving a first rule set correlated to said first application; and

applying said first rule set to limit the data available to said first application from said database.

32. [Withdrawn] A data structure comprising:

a database linking a primary table and one or more secondary tables, each of said tables sharing a common data structure;

said database controlled by a database management system configured to transform one or more of said tables into a sparse matrix linked list.

33. [Withdrawn] The data structure of claim 32, wherein said database comprises one or more interconnected relational databases.

34. [Withdrawn] The data structure of claim 32, wherein said database management system comprises an interface and a validation module.

35. [Withdrawn] The data structure of claim 34, wherein said interface controls access to said database by one or more external applications.

36. [Withdrawn] The data structure of claim 32, wherein said database management system is further configured to convert data from a subjective representation into a preferred representation.

37. [Withdrawn] A data structure for use in a database management system, comprising:

a first table of values representing preferred characterizations of a parameter;

a second table of values representing input data characterizing a parameter;

a third table of values arranged in a hierarchy to facilitate the process of matching said input data to a corresponding preferred characterization, wherein each of said tables comprises a sparse matrix linked list.

38. [Withdrawn] A method for characterizing a parameter, comprising:

receiving input data characterizing a parameter in a first table;

modifying said input data in accordance with a table of alias characterizations stored in a second table; and

matching the modified input data to a preferred characterization stored in a third table.

39. [Cancelled] An address management system comprising:

a superset comprising a primary database operatively connected to one or more secondary databases, each of said databases comprising a plurality of linked tables, and each of said tables sharing a common data structure;

an enhancement module configured to transform one or more of said tables into a sparse matrix linked list;

a publication and subscription module for controlling the distribution of data in a server-client network environment;

a matching and validation module for converting a subjective representation of an address into a preferred representation of said address; and

an interface for controlling access to said superset by one or more external applications.

40. [Cancelled] The system of claim 39, wherein said enhancement module is further configured to arrange the records of one or more of said tables in hierarchical order, in a series of levels from general to specific, based upon said data.

41. [Cancelled] The system of claim 39, wherein: said primary database includes source tables, a first secondary database includes alias tables, a second secondary database includes standardization tables, and a third secondary database is configured to accept and store input data.

42. [Cancelled] The system of claim 41, wherein: said source tables comprise data records obtained from a public or private source, said alias tables comprise one or more equivalent representations of a record, and said standardization tables comprise one or more standardized representations of a record.

43. [Cancelled] The system of claim 42, wherein said source tables comprise address records obtained from a government postal service and a commercial source.

44. [Cancelled] The system of claim 40 for storing records comprising one or more address artifacts, wherein: a first table includes preferred records, a second table includes primary alias records, and a third table includes secondary alias records.

45. [Cancelled] The system of claim 44, wherein: said preferred records comprise one or more preferred representations, said primary alias records comprise one or more equivalent representations of a primary address artifact, and said secondary alias records comprising one or more equivalent representations of a secondary address artifact.

46. [New] An address management system for converting a subjective representation of an address into a preferred representation of the address, comprising:

- a plurality of relational databases comprising:
 - a first relational database comprising one or more first tables;
 - a second relational database comprising one or more second tables for storing source data comprising address records as a sparse matrix linked list; and
 - a third relational database comprising one or more third tables storing standardized representations for a plurality of discrete artifacts;
- an interface; and
- a computer program module configured to:
 - receive a subjective representation of the address from said first relational database, wherein said subjective representation of the address comprises a plurality of discrete artifacts;
 - re-format the subjective representation of the address according to a set of standardization rules, wherein said standardization rules at least comprise amending punctuation in said subjective representation of the address;
 - parse said subjective representation of the address into the plurality of discrete artifacts, including name, street address, city, state, and zip code;
 - locate one or more candidate representations of the address;
 - select a preferred representation of the address from among said one or more of candidate representations of the address;
 - store said preferred representation of the address in said third relational database; and,

communicate the preferred representation of the address to the interface.

47. [New] The address management system of claim 46, wherein said one or more second tables comprises a plurality of address records, and wherein said computer program module is further configured to arrange said address records in hierarchical order based upon the values of said data stored in said address records.

48. [New] The address management system of claim 46, further comprising a local server computer and one or more client computers wherein said computer program module is further configured to distribute a duplicate of said source data comprising address records as a sparse matrix linked list from said local server computer to said one or more client computers.

49. [New] The address management system of claim 46, wherein said computer program module, configured to locate one or more candidate representations of the address, is further configured to:

select one of said plurality of discrete artifacts in an address record;

locate one or more candidate artifacts from among said source data by comparing said one of said plurality of discrete artifacts to said source data;

select a preferred artifact from among said one or more candidate artifacts; and

combine said preferred artifact with one or more preferred artifacts to form one of said one or more candidate representations of the address.

50. [New] The address management system of claim 46, wherein said computer program module is further configured to:

review alias data to identify a preferred alias representation of the address;

and,

record a preferred alias token to said preferred alias representation of the address.

51. [New] The address management system of claim 50, wherein said computer program module configured to review alias data to identify a preferred alias representation of the address is further configured to:

(a) parse said subjective representation of the address into a plurality of discrete artifacts;

(b) select one of said plurality of discrete artifacts:

(1) locate one or more candidate alias artifacts from said source data by comparing said one of said plurality of discrete artifacts to said alias data;

(2) select a preferred alias artifact from said one or more candidate alias artifacts;

(3) store said preferred alias artifact in said third relational database;

(c) repeat step (b) for each discrete artifact in said plurality of discrete artifacts of said subjective representation of the address; and

(d) combine said preferred alias artifacts to form one of said one or more candidate representations.

52. [New] The address management system of claim 46, wherein said computer program module is further configured to:

parse the subjective representation of the address into a plurality of discrete artifacts;

retrieve standardization data from said third relational database, said standardization data comprising one or more standardized representations for each discrete artifact in said plurality of discrete artifacts; and

retrieve alias data from a fourth relational database, said alias data comprising one or more equivalent representations of each respective artifact in said plurality of artifacts.

53. [New] The address management system of claim 46, wherein the interface is configured to govern interaction between said computer program module and one or more external applications.

54. [New] The address management system of claim 53, wherein said interface communicates with a printer.

55. [New] The address management system of claim 53, wherein said interface communicates with a display device.

56. [New] The address management system of claim 53, wherein said interface communicates with an application residing on a computer system.

57. [New] A method of processing a subjective representation of an address to obtain a preferred representation of the address, said method comprising the steps of:

- receiving the subjective representation of the address;
- parsing said subjective representation of the address into a plurality of discrete artifacts, wherein at least one of said discrete artifacts comprises a street address;
- re-formatting the subjective representation of the address according to a set of standardization rules, wherein said re-formatting comprises at least altering punctuation of the subjective representation of the address;
- locating one or more candidate artifacts from among said source data by comparing said one discrete artifact to said source data;
- selecting a preferred artifact from said one or more candidate artifacts;
- repeating the step of selecting a preferred artifact from said one or more candidate artifacts to generate a plurality of preferred artifacts;
- combining said plurality of preferred artifacts to form a candidate representation of the address;
- repeating the step of said combining said plurality of preferred artifacts to form a candidate representation of the address step to generate a plurality of candidate representations of the address;
- selecting a preferred representation of the address from said plurality of candidate representations of the address based on the presence of a preferred token; and
- communicating said preferred representation of the address to an interface.

58. [New] A method of processing a subjective representation of an address to obtain a preferred representation of the address, in an address management system comprising a plurality of relational databases including a first relational database comprising one or more first tables, a second relational database comprising one or more second tables, and a third relational database comprising one or more third tables, said method comprising the steps of:

receiving a subjective representation of the address stored in said first relational database, said subjective representation of the address comprising a plurality of artifacts including a name, street address, city, state, and zip code;

re-formatting the subjective representation of the address according to a set of standardization rules;

locating one or more candidate representations of the address from source data stored in said second relational database by recognizing that a preferred token is present among any of said one or more candidate representations of the address;

selecting a preferred representation of the address from among said one or more candidate representations of the address based on the presence of the preferred token; and

communicating said preferred representation of the address from said third relational database to an interface.

59. [New] The method of claim 58, further comprising:

storing said one or more second tables as a sparse matrix linked list in said second relational database.

60. [New] The method of claim 58, wherein each of said one or more second tables includes a plurality of records, said method further comprising:

arranging said records in hierarchical order based upon the values of said data stored in said records; and

transforming one or more of said tables into a sparse matrix linked list.

61. [New] The method of claim 58, further comprising:

(a) parsing said subjective representation of the address into a plurality of discrete artifacts;

(b) selecting one of said plurality of discrete artifacts:

(1) locating one or more candidate artifacts from among said source data by comparing said one of said plurality of discrete artifacts to said source data;

(2) selecting a preferred artifact from among said plurality of candidate artifacts;

(c) repeating step (b) for each of said plurality of discrete artifacts; and

(d) combining the plurality of preferred artifacts to form one of said one or more candidate representations of the address.

62. [New] The method of claim 58, further comprising:

reading standardization data from the third relational databases, said standardization data comprising one or more standardized representations of said plurality of discrete artifacts.

63. [New] The method of claim 58, further comprising:

- (a) parsing said subjective representation of the address into the plurality of discrete artifacts;
- (b) selecting one of said plurality of discrete artifacts:
 - (1) locating one or more candidate alias artifacts from among said source data by comparing said one of the plurality of discrete artifacts to said alias data;
 - (2) selecting a preferred alias artifact from among said one or more candidate alias artifacts;
- (c) repeating step (b) for each of said one or more discrete artifacts to generate a plurality of selected preferred alias artifacts; and
- (d) combining said plurality of selected preferred alias artifacts to form one of said one or more candidate representations of the address.

64. The method of claim 58, further comprising the steps of:

presenting said one or more candidate representations of the address to a user; and

receiving an indication from the user identifying one of the one or more candidate representations of the address as the preferred representation of the address.

65. [New] The method of claim 58, further comprising:

parsing said subjective representation of the address into a plurality of discrete artifacts;

reading standardization data in the third relational database, said standardization data comprising one or more standardized representations of said plurality of discrete artifacts; and

reading alias data in a fourth relational database, said alias data comprising one or more equivalent representations of said plurality of discrete artifacts.

66. [New] The method of claim 58, said method further comprising:

reading a plurality of rule sets, each correlated to one of said one or more external applications;

receiving a request from a first external application;

retrieving a first rule set correlated to said first external application; and

applying said first rule set to govern the interaction between said first external application and said one or more computer program modules.